

In the Claims:

1-16 (Cancelled)

17. (Currently Amended) A microscope for transmission viewing of a specimen, said microscope comprising:

a light source for producing a light beam;

an objective lens positioned for focusing the light beam produced by said light source on an area of the specimen for illuminating said area; and

a reflector means positioned for reflecting light, which has been focused by the objective lens on the illuminated area and transmitted through the specimen, back through the illuminated area of the specimen; and

a dichroic beam splitter for reflecting ~~epi-flourescence~~ epi-fluorescence excitation light produced by said light source into said objective lens.

wherein said light source is adapted to allow a change between different wavelengths for producing, alternately, transmitted light illumination and epi-fluorescence illumination; and

wherein said dichroic beam splitter is essentially impermeable with respect to said excitation light and is essentially, but not completely, permeable with respect to fluorescent light and light for said transmitted light illumination..

18. (Previously Presented) The microscope device as claimed in claim 17, wherein said reflector means comprises a body having a concave surface which reflects the light beam.

19. (Previously Presented) The microscope device as claimed in claim 18, wherein said body of said reflector means is hemispherically-shaped.

20. (Previously Presented) The microscope device as claimed in claim 19, wherein said body of said reflector means is transparent.

21. (Previously Presented) The microscope device as claimed in claim 18, wherein said concave surface is adapted to reflect essentially all of the illumination light beam.

22. (Previously Presented) The microscope device as claimed in claim 18, wherein at least a portion of said concave surface is reflective with respect to at least a portion of the illumination light to produce oblique illumination of the specimen.

23. (Previously Presented) The microscope device as claimed in claim 17, wherein said objective lens is operable to be optically coupled to the specimen via an immersion liquid for transmitting the light beam from said light source to the specimen.

24. (Previously Presented) The microscope device as claimed in claim 17, further comprising a holder for supporting the specimen on a surface of the specimen facing away from said objective lens, said holder being transparent so as not to reflect the light beam.

25. (Previously Presented) The microscope device as claimed in claim 24, wherein said body of said reflector means is operable to be optically coupled to the holder via an immersion liquid for transmitting the light beam reflected by said reflector means to the specimen.

26. (Previously Presented) The microscope device as claimed in claim 18, wherein said concave surface is reflective over its entire area with respect to fluorescent light emitted by the specimen.

27. (Cancelled)

28. (Cancelled)

29. (Previously Presented) The microscope device as claimed in claim 17, wherein at least a portion of said reflector means includes a nonreflecting surface for transmitting laser light emitted from outside a boundary surface of said reflector means to a reflecting boundary

surface to the surface of the specimen that reflects the laser light from outside the reflector means at an angle such that total reflection of laser light occurs at the boundary surface to the surface of the specimen by which fluorescent excitation of the specimen takes place in a near field area on said boundary surface.

30. (Previously Presented) The microscope device as claimed in claim 17, wherein said reflector means comprises a body having an aperture for allowing particles flung from the specimen by action of the light beam to be captured by said reflector means.